

RICHARD T. ELY LECTURE

International Financial Crises: Causes, Prevention, and Cures

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Dale Jorgenson has bestowed a great honor and no small challenge by inviting me to give this lecture: a great honor because of the distinguished list of economists who have preceded me; a challenge because of the standard they have set, and because there is no greater challenge for any economist than providing a coherent account of significant events to his scientific peers.

I am sometimes asked by friends about the differences between academic life and life as a public official. There are many. Two stand out. First, as an academic, the gravest sin one can commit is to sign one's name to something one did not write. As a public official it is a mark of effectiveness to do so as often as possible. Second, as an academic, if a problem is too hard and does not admit of a satisfactory solution, there is an obvious response: work on a different problem. That is not a luxury that one has in government.

I have been reminded of this often in recent years as we have grappled with financial crises in a number of what had previously been considered emerging markets with unrestrained futures. Anyone who doubts the social importance of what economists do should consider the debates surrounding these crises. Hundreds of millions of people who expected rapidly rising standards of living have seen their living standards fall; hundreds of thousands if not millions of children have been forced to drop out of school and go to work; hundreds of billions of

dollars of apparent wealth has been lost; the stability of large nations as nations has been called into question; and the United States has made its largest nonmilitary foreign-policy-related financial commitments since the Marshall Plan.

Almost all the issues involved in understanding, preventing, and mitigating these crises are the stuff of economics courses and research: fixed versus flexible exchange rates, moral hazard and multiple equilibria, speculation and liquidity, fiscal and monetary policies, regulation and competition. What economists think, say, and do has profound implications for the lives of literally billions of their fellow citizens. Whether it is discussing the role of derivatives in signaling exchange-rate commitments with Chinese Premier Zhu Rongji, or discussing an NBER working paper on inflation targeting with the Brazilian central bank governor Arminio Fraga, or discussing alternative approaches to bankruptcy law with Indonesia's economic team, or optimal debt durations with the Mexican authorities, I am consistently struck by the impact of the kind of research discussed at the AEA meetings.

The future well-being of the world's people in large part will depend on how the ongoing process of global integration works out. This is a strong statement, but one that is supported by the global economy's post-World War I failure and its post-World War II success. Central to global integration is financial integration: the flow of funds and of capital across international borders. And as the events of the late 1920's and early 1930's remind us, central to global disintegration can be international financial breakdowns.

Today, I want to reflect on the issue of global financial integration in light of the dramatic and largely unpredicted events of recent years. It is perhaps a good time for reflection: there has been enough repair that priority can shift from

* U.S. Department of the Treasury, 1500 Pennsylvania Avenue, Washington, DC 20005. This lecture reflects many things I have learned from experiences I have shared with colleagues in the United States government and governments around the world. I thank Brad DeLong, Marty Feldstein, Stephanie Flanders, Ken Rogoff, Andrei Shleifer, and Ted Truman for useful comments and suggestions. I am especially grateful to Nouriel Roubini and Stephanie Flanders for valuable discussions and assistance in the preparation of this lecture. The usual disclaimer applies.

immediate crisis management, but the crises are sufficiently recent that the sense of urgency that they create to improve the system has not been lost.

I shall address four issues:

- (i) what it means to have an efficient financial system, highlighting the important fact that accident prevention is only one aspect of how that system performs;
- (ii) the alternate sources of financial crises in general, and roots of the recent crises in particular;
- (iii) the best ways to design a system, both at the national and the international level, that will work well and more effectively prevent crises;
- (iv) the question of effective crisis response, again, both at the level of national policies and the response of the international community.

I. The Goal of an Efficient Global Financial System

Recent years have witnessed a sea change in the global financial system, as the flow of private capital from industrial to developing countries has mushroomed from \$174 billion in the 1980's to \$1.3 trillion during the 1990's. In 1990, one emerging-market economy issued sovereign Eurobonds. By 1998, 40 or so emerging-market economies had issued them over the course of the 1990's. And the incidence of major financial accidents has risen sharply, to the point where in the fall of 1998 we experienced what many regarded as the worst financial crisis of the last 50 years following Russia's default, leading many to question the premise that an integrated global financial system is desirable.

The question is an important and a fair one. But it can be answered. There is much about a market economy that we take for granted. One of the more remarkable aspects is the work of a well-functioning financial system. On the one side there are consumers who want to set aside resources to prepare for their retirement, or to prepare for a rainy day, or to accumulate resources to purchase a car but who have essentially no productive opportunities for investment. On the other side there are those with

opportunities to use resources today to produce more resources tomorrow by investing in equipment, structures, or schooling, or to permit consumers to smooth their consumption streams. It is the task of the financial system to bring the wants and the opportunities together.

When this is done better, a number of benefits result. An economy grows because investments earn higher returns. Scarce capital is put to its best use. Consumers benefit from more future consumption in return for consumption opportunities forgone. Risks are better shared, and individuals face less volatility in the amounts they are able to consume. These are real and tangible benefits, and so it is appropriate that financial systems absorb real resources.

As is now widely understood, the abstract argument for a competitive financial system parallels the argument for competitive markets in general. As the textbooks teach, the appropriate rates of substitution and transformation are equated. Intermediation activity will be profitable when it is efficient; that is, when the gains generated outweigh the costs of the activity. Thus, for example, specialists who provide liquidity to a market will earn profits that reflect the benefit they are bringing buyers and sellers, just as those who transport goods between high- and low-price regions can earn revenues that reflect the benefits they are providing.

In the United States economy today, 7 percent of GNP is devoted to financial intermediation, more than double the share 40 years ago. And this takes no account of the large effort within nonfinancial corporations that is devoted to raising and allocating capital. It is tempting but, I have become convinced, wrong to think of all this intermediation activity as deadweight loss efforts to win zero-sum games.¹ While there may be some elements of this kind of thing, the larger point is this: even small increases in the efficiency with which capital is allocated have enormous social benefits. If a typical economy has a capital output ratio of

¹ This conclusion reflects evolution in my thinking. Summers and Victoria P. Summers (1989) takes a rather dimmer view of the financial system. While the arguments made there regarding elements of rent-seeking still seem valid, the discussion there did not do justice to the benefits that liquid markets provide.

3:1, it follows that an increase in the efficiency with which capital is allocated of 2 percent or roughly 20 basis points has a social benefit equivalent to that of 6 percent of GNP in foregone consumption.

What does all this have to do with the international financial system or with international financial crises? The implication is that, insofar as international financial integration represents an improvement in financial intermediation (whether because of the transfer of saving from low- to high-return jurisdictions, because of better risk-sharing, or because institutions involved in the transfer of capital across jurisdictions improve the efficiency with which capital is allocated), it offers a potentially significant increase in economic efficiency with benefits both for consumers and for investors around the world. Just as trade in goods across jurisdictions has benefits, so too will intertemporal trade and trade that shares risks across jurisdictions have benefits.

These are not just abstractions. There are a priori reasons to suppose that the gains from intertemporal trade and from trade in financial services have the potential to be very large. Essentially all of the growth in the world's labor force over the next few decades will take place in the developing world, as the industrialized world ages. Yet most of the world's saving will take place in industrialized countries. And the abundant evidence of unutilized steel mills and what Federal Reserve Chairman Alan Greenspan has called "conspicuous construction" speaks to the potential for improved systems of intermediation to allocate capital more efficiently within developing countries, as well as between the developed and the developing world.

Some, notably Jagdish Bhagwati (1998), have taken the position that these benefits apply only to long-term direct investment. But while, as I will discuss, there are certainly dangers from creating excessive biases in favor of financial flows, one should remember that in the right kind of environment financial flows can also provide important benefits. First, they are the outcome of transactions that finance real trade and related financial transactions and provide cross-border liquidity to the interbank market. Second, they provide capital to local businesses on what are often the best available terms.

Third, they are closely associated with the presence of foreign businesses and foreign financial institutions, which themselves bring significant benefits. More generally, generic attempts to distinguish between good (direct) and bad (financial) capital flows remind me of attempts to distinguish between good and bad imports of goods and services in international trade—and may prove equally counterproductive.

While all that potential is certainly there, words like "moral hazard," "adverse selection," "noise trading," and "herding" remind us that economic theory has identified many reasons why financial markets do not always perform perfectly. And the centuries-long history of financial crises teaches us no less clearly that the flows of capital driven by financial markets can be very different from an efficient and optimal allocation of savings to the right investment projects.

How best to think about financial innovation? An analogy may be helpful. The jet airplane made air travel more comfortable, more efficient, and more safe, though the accidents were more spectacular and for a time more numerous after the jet was invented. In the same way, modern global financial markets carry with them enormous potential for benefit, even if some of the accidents are that much more spectacular. As the right public policy response to the jet was longer runways, better air-traffic control, and better training for pilots, and not the discouragement of rapid travel, so the right public policy response to financial innovation is to assure a safe framework so that the benefits can be realized, not to stifle the change.

That said, the development of a proper air transport system also depended on understanding and addressing the reasons for crashes. In the same way, the development of the right kind of international financial system will depend on understanding the causes of crises, a topic to which I now turn.

II. Understanding International Financial Crises

Leo Tolstoy famously observed that "every happy family is the same. Every unhappy family is miserable in its own way." Every financial crisis is different and involves its own distinctive elements. There are, however, some

TABLE 1—STATISTICS FOR “CRISIS” COUNTRIES

Statistic	Country					
	Brazil	Indonesia ^c	South Korea	Mexico	Thailand ^d	Russia
Quarterly real GDP (percentage change)						
Peak to trough	2.6	(18.9)	(7.5)	(9.7)	(13.6)	(4.3)
Trough plus 12 months	4.0 ^e	7.5	9.9	6.6	7.4	2.0
Trough plus 24 months	8.7 ^e	n.a.	n.a.	15.6	n.a.	n.a.
Quarterly current account (\$ billion)						
Peak	(11.5)	(2.4)	(7.4)	(7.9)	(4.8)	(3.6)
Trough	(4.6)	1.8	10.9	0.3	4.2	6.6
12 months after trough	(3.8) ^e	1.8	6.2	(1.2)	3.5	3.5
24 months after trough	n.a.	n.a.	n.a.	(3.0)	n.a.	n.a.
Quarterly current account (percentage of GDP)						
Peak	n.a.	(3.8)	(6.3)	n.a.	(10.7)	n.a.
Trough	n.a.	8.6	16.1	n.a.	16.4	n.a.
12 months after trough	n.a.	3.4	6.9	n.a.	10.8	n.a.
24 months after trough	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Change in net international reserves (\$ billion) ^a						
Peak to trough	(14.5)	(15.3)	(25.7)	(19.5)	(36.0)	(18.0)
Trough plus 12 months	8.8 ^e	52.5	44.8	6.6	13.8	0.4
Trough plus 24 months	13.5 ^e	n.a.	69.8	15.7	24.8	n.a.
Change in nominal exchange rate (percent) ^b						
Peak to trough	−41.0	−526.5	−57.2	−54.0	−58.3	−76.0
Trough plus 12 months	13.0 ^e	53.5	62.7	−10.0	52.2	n.a.
Trough plus 24 months	4.0 ^e	n.a.	73.6	−15.0	47.5	n.a.

Notes: Dates of crises are as follows: Brazil, January 1999; Indonesia, October 1997; South Korea, December 1997; Mexico, December 1994; Thailand, July 1997; Russia, August 1998. Quarterly GDP “peak” is assumed to be the quarter in which the “crisis” occurred. “Peaks” for other statistics are assumed to occur in the quarter one year before the crisis quarter in most cases. The designation “n.a.” indicates that data are not available. Quarterly real GDP and quarterly current account data are seasonally adjusted.

^a Net of IMF/BIS loans.

^b Negative entries indicate depreciation.

^c Reserve data are gross reserves less gold.

^d Quarterly current-account balances are not seasonally adjusted.

^e Based on IMF projections.

elements that are common to many of the emerging-market financial crises we have seen in recent years.

International financial crises can be defined in many ways and can take many forms. What I mean by an international financial crisis is a situation where the international dimension substantially worsens a crisis in ways that would not occur in a closed economy. By this definition, I do not mean to understate the major role that domestic fundamental weaknesses can play in bringing on a crisis. I do mean to exclude situations where it is primarily poor domestic economic performance that leads to debt-

servicing problems.² I also mean to exclude currency crises in which countries are forced to

² While elements of domestic and policy vulnerability were present in the international financial crises under consideration (e.g., the fiscal problems of Russia and Brazil), we like to distinguish episodes like those in the 1990's where capital-account developments had a central role (even if it fed on some fundamental weaknesses) from many episodes in the 1980's where systematic poor policies (large and structural fiscal deficits; high inflation caused by monetization of such deficits; persistently unsustainable external imbalances; and systemic distortions in goods, services, and capital markets) had a greater role in triggering a traditional currency and financial crisis.

adjust exchange rates although, as we shall see, devaluations can frequently presage international financial crises.

If we are to prevent accidents as effectively as possible, and mitigate them where we cannot prevent them, it is important to understand how they happen and the nature of their antecedents. There have been six major international financial crises during the 1990's: Mexico in 1995; Thailand, Indonesia, and South Korea in 1997–1998; Russia in 1998; and Brazil in 1998–1999. Table 1 provides some information on these crises. Elements in common include a dramatic swing in the current account, a large real depreciation, and a significant decline in real output. With some differences between cases, the pattern in all these crises, and indeed, a number of crises historically, appears to involve three broad elements.

First, after a period of substantial capital inflows, investors (both domestic and foreign) decided to reduce the stock of their assets in the affected country in response to a change in its fundamentals. This can have many sources: concern about the viability of the exchange-rate regime, as in most of these cases; concern about large fiscal deficits, as in Russia and Brazil; concern about large current-account deficits, as in Thailand and Brazil; and the increasing salience of long-standing financial-sector weaknesses, arising from some combination of insufficient capitalization and supervision of banks and excessive leverage and guarantee—the combination that, along with directed lending, has been captured in the term “crony capitalism.”³

Second, after this process went on for some time in these emerging-market countries, investors shifted their focus from evaluating the situation in the country to evaluating the behavior of other investors. The rate of withdrawal increased as a bank-run psychology took hold, and investors sought to avoid being the last ones in as they saw the country's reserves being

depleted.⁴ This was manifested in the shift of the mode of investment analysis from economics to hydraulics, with an accounting-spreadsheet exercise that made no reference to prices on the sources and uses of funds. Rumors of drastic action (a moratorium, capital controls, or some such) began to circulate, and a panic mentality developed. This phenomenon was particularly evident in Mexico in early 1995 and in South Korea between Thanksgiving and Christmas in 1997, and it seems a particularly pervasive feature of recent emerging-market crises. No one, after all, raised questions about debt rollover in the United Kingdom following sterling's exit from the European Exchange Rate Mechanism (ERM) in 1992, or in continental Europe after the breakdown of the ERM in 1993.

Third, the withdrawal of capital and the associated sharp swing in the exchange rate and reduced access to capital exacerbated fundamental weakness, in turn exacerbating the financial-market response. The real depreciation of the exchange rate reduced real incomes and spending. Extrapolative expectations regarding a falling exchange rate increased pressure for capital flight. And, most importantly, the increased domestic value of foreign-currency liabilities and reduced creditworthiness of domestic borrowers further degraded an already ailing financial system, in turn causing further reductions in lending and worsening of the fundamentals.⁵

⁴ The role of bank runs/panic and an interpretation of the crisis in terms of an international liquidity crisis has been stressed by Guillermo Calvo (1998), Roberto Chang and Andres Velasco (1998, 1999), Jeffrey Sachs and Steven Radelet (1998, 1999), and Dani Rodrik and Velasco (1999).

⁵ See Philippe Aghion et al. (1999) and Krugman (1999) for formal models of such balance-sheet effects. These effects may also help to explain why currency crises are often associated with financial/banking crises, a phenomenon referred to as “twin crises.” Indeed, in five out of the six international financial crises considered in this paper, currency crises were associated with banking crises. However, the interaction between currency and banking crises is complex. While balance-sheet effects may explain why currency crises lead to banking crises, evidence also suggests that, at times, banking crises precede currency crises and are an early warning signal of future currency crises. The analytical and empirical complex interactions between banking and currency crises have been recently studied by a number

³ See Ronald McKinnon and Huw Pill (1996), Morris Goldstein (1998), Paul Krugman (1998), Giancarlo Corsetti et al. (1999a, b), and Council of Economic Advisers (1999) for analyses stressing the role of fundamentals and distortions created by guarantees and weaknesses in the financial sector.

In order to understand the economics of the crises we have seen, each of these three critical elements is essential. Without a change in sentiment, driven by a weakening in the economic fundamentals, it is not possible to account for decisions to withdraw capital. Without the bank-run psychology, it is not possible to account for the scale of the change in investors' allocation decisions, which seem so discontinuous with respect to any easily observable aspects of fundamentals. Without reference to the strains on domestic financial systems and corporate firms, it is hard to account for the magnitude of the observed declines in economic performance and the failure of real exchange-rate depreciations to trigger large immediate increases in exports in a number of cases.

Another feature of the 1990's episodes of turmoil is the presence of international "contagion," seen in the ERM crisis of 1992–1993, the "tequila" effects of the Mexican peso crisis of 1994–1995, the "yellow fever" effects of the Asian crisis of 1997–1998, and the asset-market contagion following the Russian devaluation and default in August 1998 and the Brazilian devaluation in January 1999.

There are many explanations and models of contagion.⁶

- (i) It can be due to common shocks (like terms of primary commodity price shocks) that simultaneously hurt the commodity-exporting countries.
- (ii) Trade linkages transfer relative price and income (demand) shocks from one country to the other.
- (iii) Competitive devaluations among countries competing among themselves or

in third markets may explain excessive currency depreciation of many currencies.

- (iv) Financial linkages lead to asset-market correlations: if one country invests in and lends to another one, poor economic news in the latter will also affect asset markets in the former.
- (v) Market illiquidity may have exacerbated contagion. For example, when some highly leveraged institutions experienced significant losses following the Russian crisis, margin calls and lack of liquidity may have led them or forced them to reduce their positions in other markets, thus feeding contagion.
- (vi) Some elements of investors' irrationality may have been at work; panic, herding, and positive feedback trading may partly explain why investors withdrew indiscriminately from many markets without careful distinction among different emerging markets based on their fundamentals.
- (vii) Finally, and in my view, more importantly, "reputational externalities"⁷ were almost certainly at work. A crisis in one country can affect investors' expectations and perceptions about common structural conditions and vulnerabilities in other countries and the likely policy response to such vulnerabilities.⁸

From the perspective of actual experience, analytical distinctions between "multiple-equilibrium crises" and "fundamentals-driven crises" seem less sharp than they sometimes do in the academic literature. It seems diffi-

of authors, including Barry Eichengreen and Andy Rose (1998), Ilan Goldfajn and Rodrigo O. Valdes (1998), Corsetti et al. (1999b), Goldstein et al. (1999), and Graciella Kaminsky and Carmen Reinhart (1999).

⁶ The theoretical and empirical literature on contagion is vast; many recent contributions were presented at the IMF and World Bank-sponsored conference on International Financial Contagion (3–4 February 2000) (papers available online at (<http://www.worldbank.org/research/interest/confs/upcoming/papersfeb3-4/papers.htm>)). Good recent surveys are by Rudiger Dornbusch et al. (2000) and Matthew Prisker (2000).

⁷ This is a concept developed by Richard Zeckhauser (1986).

⁸ Quoting the 1999 Economic Report of the President (Council of Economic Advisers, 1999 p. 244): "For example investors' belief in the strength of the Asian economic model may have changed when one of the star performers stumbled. The failure of financial institutions in one country may lead investors to believe, in the absence of better information to the contrary, that institutions in similar countries in the same region might be facing the same problems. Similarly, the unwillingness or inability of several Asian economies to defend their currencies more aggressively may have altered investors' views concerning the policy preferences of other economies in the region."

cult to point to any emerging-market economy that experienced a financial crisis but did not have significant fundamental weaknesses that called into question the sustainability of its policies. Yet it seems equally difficult to avoid the judgment that, in many of these recent cases, the punishment was in a sense disproportionate to the crime, with the process of capital withdrawal greatly exacerbating any underlying weakness.

A crude but simple game, related to Douglas Diamond and Philip Dybvig's (1983) celebrated analysis of bank runs, illustrates some of the issues involved here. Imagine that everyone who has invested \$10 with me can expect to earn \$1, assuming that I stay solvent. Suppose that if I go bankrupt, investors who remain lose their whole \$10 investment, but that an investor who withdraws today neither gains nor loses. What would you do? Each individual judgment would presumably depend on one's assessment of my prospects, but this in turn depends on the collective judgment of all of the investors.

Suppose, first, that my foreign reserves, ability to mobilize resources, and economic strength are so limited that if any investor withdraws I will go bankrupt. It would be a Nash equilibrium (indeed, a Pareto-dominant one) for everyone to remain, but (I expect) not an attainable one. Someone would reason that someone else would decide to be cautious and withdraw, or at least that someone would reason that someone would withdraw, and so forth. This phenomenon, which Douglas Hofstadter has labeled "reverberant doubt," would likely lead to large-scale withdrawals, and I would go bankrupt. It would not be a close-run thing. John Maynard Keynes's beauty contest captures a similar idea.

Now suppose that my fundamental situation were such that everyone would be paid off as long as no more than one-third of the investors chose to withdraw. What would you do then? Again, there are multiple equilibria: everyone should stay if everyone else does, and everyone should pull out if everyone else does, but the more favorable equilibria seems much more robust.

I think that this thought experiment captures something real. On the one hand, bank

runs or their international analogues do happen. On the other hand, they are not driven by sunspots: their likelihood is driven and determined by the extent of fundamental weaknesses. These questions of equilibrium selection can be and indeed have been more formally analyzed.⁹ For my purposes, the point is that preventing crises is heavily an issue of avoiding situations where the bank-run psychology takes hold, and that will depend heavily on strengthening core institutions and other fundamentals.

III. Crisis Prevention at the National and International Level

A. National Crisis-Prevention Efforts

Many countries experience major shocks—to their terms of trade, to investor confidence, or within their domestic financial systems. Relatively few of them have major financial crises. Why? Table 2 provides subjective ratings of the importance of various factors as antecedents to the six major emerging-market financial crises of the 1990's.

Four primary conclusions emerge:

- (i) In nearly all the cases, serious banking and financial-sector weaknesses played an important role.
- (ii) Fixed exchange rates without the concomitant monetary-policy commitments were present as antecedents to crisis in all the cases.
- (iii) Traditional macroeconomic fundamentals, in the form of overly inflationary monetary policies, large fiscal deficits, or even large current account deficits, were present in several cases but are not necessary antecedents to crisis in all episodes.

⁹ Stephen Morris and Hyun Song Shin (1998) provide a novel analysis of how weak fundamentals, uncertainty of the type I discussed in Hofstadter's "wolf's dilemma" game, and private information in a standard multiple-equilibrium model can produce a unique equilibrium. This work suggests the fragility of many multiple-equilibria results and the crucial role of fundamental weaknesses. The challenge is now to model these phenomena in more realistic dynamic settings.

TABLE 2—SOURCES OF VULNERABILITIES IN RECENT MAJOR CAPITAL-ACCOUNT CRISES

Source	Country					
	Brazil	Indonesia	South Korea	Mexico	Thailand	Russia
Pegged exchange rate (reserve depletion)	1	0.5 ^a	0.5	1	1	1
Current-account deficit	0.5	2	3	1	1	3
Fiscal deficit	1	3	3	3	3	1
Banking and financial-sector weakness	3	1	1	1	1	1
Government short-term debt	1	3	3	1	2	1
Total short-term foreign indebtedness	2	1	1	2	1	1
General governance	2	1	2	2	2	1

Notes: Key to table entries: 1, very serious; 2, serious; 3, not central.

^a Indonesia let its exchange rate float in August 1998, did exhibit strong signs of real exchange-rate misalignment, and did not expend reserves defending the rate. However, the inflexible exchange-rate regime does seem to have encouraged a large buildup of foreign currency debt in the private sector.

- (iv) National balance-sheet weaknesses, including large short-term liabilities either of government or the private sector, were important elements in each of the crises.

A substantial literature has sought more systematically to analyze the antecedents and non-antecedents of financial crises with broadly similar conclusions to my crude table.¹⁰ These four observations, in turn, help identify the four elements of an effective national strategy for minimizing the risk of this kind of crisis.

First, and easier said than done, is maintaining a strong domestic financial system. While many authors emphasize vulnerability measures comparing the level of foreign reserves to

measures of short-term liabilities, the work of Simon Johnson et al. (2000) is particularly persuasive in highlighting the strength of domestic financial systems and institutions. When well-capitalized and supervised banks, effective corporate governance and bankruptcy codes, and credible means of contract enforcement, along with other elements of a strong financial system, are present, significant amounts of debt will be sustainable. In their absence, even very small amounts of debt can be problematic.

The second element is the choice of appropriate exchange-rate regime, which, for economies with access to international capital markets, increasingly means a move away from the middle ground of pegged but adjustable fixed exchange rates toward the two corner regimes of either flexible exchange rates or a fixed exchange rate supported, if necessary, by a commitment to give up altogether an independent monetary policy. The practical choice between these two poles, for emerging-market economies today, probably has less to do with Robert Mundell's traditional optimal-currency-area considerations

¹⁰ There is a vast econometric literature on the causes of recent crises and early-warning indicators of future crises. Recent contributions include Jeffrey Frankel and Rose (1996), Sachs et al. (1996), Andrew Berg and Catherine Pattillo (1998), Goldstein et al. (1999), Sachs and Radelet (1999), and Corsetti et al. (1999c).

than with a country's capacity to operate a discretionary monetary policy in a way that will reduce rather than increase variance in economic output.

Third, a sound and stable macroeconomic policy environment is needed where monetary-policy and fiscal-policy vulnerabilities are minimized, including especially the avoidance of fiscal deficits that are substantially beyond a country's sustainable domestic financing capacity. What this deficit level will be will depend on a country's savings behavior and the quality of its capital markets.

Fourth, countries should reduce their vulnerabilities to liquidity/rollover risk and balance-sheet risk. Foreign reserves need to be compared to meaningful measures of liabilities that can become a claim against a country's reserves; traditional ratios of reserve to imports are thus of little use. Also, policy biases toward short-term capital need to be avoided.

This last point deserves emphasis because we have seen this kind of bias time and time again in the recent crises:

- (i) We saw it in Mexico, with the increasing resort to issuing dollar-denominated Tesobonos in the lead-up to crisis.
- (ii) We saw it in Thailand, in the tax breaks on offshore foreign borrowing and the government's decision to mortgage all of its reserves on forward markets.
- (iii) We saw it in South Korea, where discriminatory controls kept long-term capital out and ushered short-term capital in.
- (iv) And we saw it in Russia, in the government's determined efforts to attract international investors to the market for ruble-denominated GKO's.

In this context the question naturally arises of controls on short-term capital inflows as a crisis-avoidance measure. But the first and usually neglected point is that, just as economists usually recommend that efforts to reduce energy consumption should start with the elimination of energy subsidies rather than the introduction of new energy taxes, so the first priority with regard to capital flows must be to do no harm: that is, to avoid policies that reach excessively for short-term

capital, such as those we have seen in recent crisis economies.

A measure of sound management of short-term flows is implicit in any prudential regulation of banks. Where controls are in place it is a mistake to be theological about their removal; but experience suggests that such controls tend to become more ineffective over time, create their own costs and distortions, and discourage the integration of financial services that can be an important source of stability. They are no panacea and indeed can degrade the performance of the very functions of the financial system described in Section I.

Still, policy biases that lead to an excessive accumulation of short-term debt should be addressed via policy changes that eliminate such biases, including: the distortions that can result from restrictions on foreign direct investment, inward equity portfolio investment, or the access of nonresidents to long-term bond markets; or policy distortions and tax incentives that can lead to an excessive reliance on debt relative to equity finance. Of course, underdeveloped capital markets, where long-term forms of finance (i.e., equity, long-term bonds) are not widely available, will themselves create a bias in favor of short-term capital flows in the right environment. When we consider the recognized role that efficient capital markets can play in providing finance for long-term growth, it is clear that their development should be given high priority in the process of domestic and international capital-market liberalization.

Just as better airplanes and airports are good in ways that go beyond accident-prevention, all of these steps are valuable not simply as crisis prevention measures, but in their own right, as proven strategies for promoting economic efficiency and growth.

B. *International Crisis-Prevention Efforts*

Ultimately, the likelihood of plane crashes depends on the training and judgment of pilots and sound manufacture of planes. But the system in which pilots operate will equally be important and demands careful consideration. The same applies to the international dimension of crisis prevention.

The overwhelming contribution that the international community can make toward

preventing crises is to succeed in encouraging sound national economic policies. And the most important thing that the international community can do in achieving this goal is to promote transparency.

If one were writing a history of the American capital market, I think one would conclude that the single most important innovation shaping that market was the idea of generally accepted accounting principles. The transparency implicit in the generally accepted accounting principles (GAAP) promotes efficient market responses to change, and it supports stability. Furthermore, if as Ken Galbraith has observed, conscience is the fear that someone may be watching, it may be the single most effective means of promoting self-regulation. Very much the same kind of transparency is needed in the emerging economies.

There is also an important role for better international surveillance of the quality of national policies in the areas just described. This is a role that is increasingly being taken on by the IMF in a broader range of areas, as it moves away from the time when it could be said that IMF stood for "It's Mostly Fiscal."¹¹ International forums such as the G-7, the new G-20, the APEC finance ministers, and so forth can also be helpful. Indeed, their major accomplishment is not the specific decisions that are taken when they meet—sometimes there are none. Rather, it is the gradual spread of common ways of thinking about and responding to economic developments. The value of the diffusion of best practice, or at least, better practice, is not to be discounted. Over time these forums provide important opportunities to use political pressure to nudge national policies in the right direction.

Beyond the approbation of their peers, the question does arise as to what will motivate countries to pursue stronger policies. The basic answer has to be self-interest. The ultimate reward for countries with improved policies will be better economic outcomes and a higher standard of living for their citizens. The proximate and more immediate indicator and incentive can

be the lower borrowing costs that come from being well-regarded by the market.

There are some who suggest that systematic augmentation of countries' foreign reserves, through the availability of generalized, unconditional emergency finance, would make accidents less likely by reducing the risk of the kind of self-fulfilling expectations-driven crises that I have discussed. While conditioned, precautionary financial support is constructive in some cases, the risk inherent in systematic availability of unconditional credit to countries can be summarized in two words: moral hazard. Crises are typically preceded by significant depletion of reserves. There is the real prospect that automatic availability of reserves would simply delay necessary adjustments and thereby prove highly destructive.

While the best preventive policies would minimize the chance that crises would occur, they would never eliminate them entirely. When they do occur, it will be important to follow policies that minimize their virulence and consequences.

IV. National and International Crisis Response

Crisis response, like crisis prevention, has two dimensions: national policies that can restore confidence and international efforts to finance a credible path out of crises. Of these, by the far the most important is the response of national authorities in the countries concerned. If there is one lesson that has been brought home most forcefully by the events of recent years, it is that countries shape their own destinies—and the international community can never want sound policies or economic stability more than the government and people of the country itself.

A. *Effective Crisis Response at the National Level*

The best national response to crisis is not to have one. The next best is to have a sufficiently robust set of domestic institutions and national economic system that the crisis is contained and self-limiting and does not reach the stage where a country's capacity to meet its international obligations comes into question. This goes back to questions of crisis-prevention. Here I am

¹¹ See my speech on IMF reform (Summers, 1999) for an elaboration of these ideas.

talking about full-blown crises of the kind suggested by the six examples we have seen in the 1990's.

In my experience, policymakers in a country facing such a crisis tend to go through stages reminiscent of the five stages of grief. First, there is the denial that a crisis could be taking place. Second, we see anger, with a rush to blame speculators and other outside forces, and often, domestically, a change in government. Third, there is the bargaining: the desperate search for magic bullets that we saw, for example, in the pressure for a currency board in the depth of the crisis in Indonesia. Fourth comes despair, leading eventually to the decision to call in the IMF. Finally, in the fifth stage, there is acceptance and the agreement of a credible plan.

As an academic I used to be impatient with the seemingly mundane advice of former officials and worldly sorts who counseled the victims of financial crisis to communicate with their creditors, get the bad news out early, take decisive steps early to resolve a crisis, and so forth. More recently, I have come to appreciate more keenly that propositions become clichés because they capture truth. In situations where confidence is central, it is a mistake to think that it is only the substance of what national authorities do that matters.

Perhaps the best advice that I have heard about the right policy following a crisis is President Ernesto Zedillo's admonition, based on his experience leading Mexico out of crisis in 1995, that markets overreact, so policy needs to overreact as well.

All of this speaks to the form of an effective policy response to crises. What about its content? It will vary from case to case. But experience suggests some important lessons:

- (i) Providing confidence to markets and investors that a credible path out of crisis exists and will be followed is essential. That requires transparency (providing all relevant information to markets so that risk-averse investors are not uncertain about how deep and serious problems are), consistent and credible commitment to a coherent policy-adjustment package (so that political and policy uncertainty does not undermine investors' confi-

dence), and close consultation with creditors (so that sudden negative policy and informational surprises are minimized, and so that creditors are reassured that cooperative approaches to debt servicing difficulties will be pursued).

- (ii) If lax fiscal policy is a contributor to the crisis, then tightening will be a key part of restoring confidence, but in a situation in which large-scale outflows of capital are likely to have their own contractionary effect, it is neither necessary nor desirable to tighten fiscal policy solely in response to the crisis itself. Indeed, since devaluation may be deflationary in the short run (through its expenditure reduction effects) rather than expansionary (via the expenditure switching effect that kicks in the medium run), less stress may have to be put on other forms of expenditure-reduction in the adjustment process (i.e., fiscal contraction) when these are not warranted based on fundamentals. And, in fact, fiscal policy was allowed to loosen in several Asian crisis economies when the depth of the recession emerged in early 1998.
- (iii) Countries need to set the right monetary policy to establish confidence, and in a situation in which a currency is in free-fall it is difficult to believe that the way to restore stability is to produce more of that currency. The right monetary policy at times of crisis has to be one that will minimize the average interest rate over the medium term; and where confidence is at issue, that may imply a significant tightening in the short run. Given the free fall of currencies (and ensuing exacerbation of contractionary balance-sheet effects) in cases such as Indonesia, where monetary conditions were kept lax at the onset of the crisis, the argument that lower interest rates early on would have strengthened currencies seems neither convincing nor supported by the evidence. Indeed, currencies stabilized and recovered in Asian-crisis economies after a period of tight money restored confidence in early 1998, paving the way for a rapid and significant reduction in interest rates in the second part of the year.

- (iv) Prompt action needs to be taken to maintain financial stability, by moving quickly to support healthy institutions and by intervening in unhealthy institutions. The loss of confidence in the financial system and episodes of bank panics were not caused by early and necessary interventions in insolvent institutions. Rather, these problems were exacerbated by (a) a delay in intervening to address the problem of mounting nonperforming loans; (b) implicit bailout guarantees that led to an attempt to "gamble for redemption"; (c) a system of implicit, rather than explicit and incentive-compatible, deposit guarantees at a time when there was not a credible amount of fiscal resources available to back such guarantees; and (d) political distortions and interferences in the way interventions were carried out (as when an Indonesian bank owned by a son of President Soeharto was closed one day only to be reopened the next, under a different name in the same premises).
- (v) Strong and effective social safeguards need to be in place. Effective social policy and spending can ease the task of adjustment during times of crisis, help build support for necessary reforms, and ensure that the burden of adjustment does not fall disproportionately on the poorest and most vulnerable groups in society. This is a moral imperative. It can also be a political imperative if strong adjustment policies are to be sustained. Countries need to own the adjustment program, and governments have to be democratic and have popular support for policies that are painful in the short run but necessary to restore growth in a rapid manner. Indeed, in several Asian countries (Thailand, South Korea, and Indonesia), the process of confidence-restoration and asset-price recovery was associated with the rise to power of new governments that had greater political legitimacy and popular support.

Clearly, in all of these judgments there will be difficult issues of balance, and we can never guarantee that they will be made correctly in every case. But there can be no

question (and there has not been any question) that the goal is to restore confidence and stability as rapidly as possible and so to pave the way for renewed growth.

B. *International Crisis Response*¹²

As I noted earlier, a hallmark of crisis in its most virulent phase is that a country's creditors come to focus on hydraulics, not economics, looking to see whether there are adequate resources to finance all obligations coming due. Absent this assurance, the restoration of confidence will not be possible.

The central task for the international response to a crisis is the establishment of a path that will see a country and its creditors out of the crisis through a series of mutually consistent and reinforcing actions. The goal must be the restoration of confidence and the normal flow of private capital.

This goal can be addressed in two broad ways in the context of credible policy adjustment:

- (i) through the provision of official finance; or
- (ii) through some coordination of private creditors to reduce outflows or roll over obligations coming due.

Along with spurring sound policy in the affected country, the crucial objective of the international community in responding to crisis is using these two tools to promote the restoration of confidence.

The provision of emergency finance in support of credible policy adjustment can, in

¹² There are many academic and policy contributions to the debate on the reform of the international financial system aimed at preventing crises from occurring and resolving with minimal costs those that do occur. Such contributions include, but are not limited to, work by the Council on Foreign Relations (1999), Eichengreen (1999), Martin Feldstein (1999), and Kenneth Rogoff (1999). Recently, researchers have also started to develop analytical models of architecture to consider the implications and effects (sometimes perverse) of a number of policy proposals, such as partial or full international lender of last resort, capital controls, rollover options, and temporary suspension of external debt payments. These analytical contributions to the architecture debate include work by Goldfajn and Valdes (1999), Olivier Jeanne (1999), Jeanne and Charles Wyplosz (1999), and Jeronim Zettelmeyer (1999).

principle and in practice, be highly effective in restoring confidence. Unlike in the 1980's when the international financial institutions and bilaterals provided only relatively minor sums to countries in crisis, large-scale provision of emergency finance has been a central part of the international financial community's response to the crises of the 1990's. The approach followed, as embodied in the IMF's Supplemental Resources Facility, has had something in common with Walter Bagehot's dictum of lending freely at penalty rates on collateral that is sound in normal times. While the counterfactual is not available, I believe that the availability of substantial resources has contributed to the relatively rapid recovery from deep crises in countries such as Mexico and South Korea which were successful in carrying out their policy commitments. Korea's economy, for example, is currently growing by around 9 percent.

The provision of conditioned finance at premium rates to respond to crises does raise certain difficulties. First, there is the real question of balancing the desire to apply conditionality to country policies with the desire to add confidence to the market. The former requires uncertainty as to whether resources will be forthcoming; the latter is best served by confidence, so the balance that must be struck in a transparent world where national authorities and the market hear the same message is a complicated one.

Second, there is the issue of moral hazard and the possible systemic implications of the expectations of bailouts. There is considerable debate about the importance of this issue. While many disagree, I think it is hard to make the case that investments in emerging markets have been heavily influenced by the expectation of the availability of official resources for bailouts.

For example, there is no systematic evidence that flows to official creditors rose relative to flows to private creditors following the official response to the Mexican financial crisis. Furthermore, there is the analytical point that, if official-sector lending into financial crises is judged properly and is paid back at premium interest rates, it can benefit the lenders, creditors, and countries involved and does not impose a taxpayer cost in the

same way that deposit insurance does. Indeed, a well-designed official lending facility that is profitable and makes all relevant agents better off is a clear Pareto-improvement.¹³ However, as in the case of an efficient and incentive-compatible deposit-insurance and safety-net scheme, possible moral-hazard distortions induced by automatic guarantees need to be avoided to ensure that the scheme does not lead to systemic losses and distortions. Thus, it is certain that a healthy financial system cannot be built on the expectation of bailouts.

The third question raised by large-scale official lending as a response to crisis is one of feasibility. As capital markets integrate and capital flows increase, in at least some cases it may well become impossible for official finance to fill gaps entirely or restore confidence.

These considerations lead to private-sector coordination as an alternative response to crisis. Coordination of bank creditors played a crucial role in the resolution of the South Korean financial crisis and a significant role in Brazil. Private-sector involvement as an approach to crisis resolution has the virtues of avoiding the need for public-sector money and of reducing moral hazard. But it too raises difficulties.

There is the question of achieving coordination. Individual creditors have little incentive to cooperate in reschedulings or debt reductions, and ample opportunities to free ride if approaches based on voluntarism are pursued. At the same time, if approaches based on coercion are pursued, there are real questions of fairness: for example, how should a country's domestic debts be treated? And what about efforts on the part of local residents to convert domestic into foreign

¹³ However, as shown by Neil Wallace (1988), optimal partial suspension schemes during a bank run may dominate a government lender-of-last-resort (or deposit-insurance) scheme unless the government has superior information about the nature and size of the bank run. This leaves open the issue of whether the creditor-coordination problem that leads to self-fulfilling runs could be addressed via appropriate private-sector involvement (a mechanism to coordinate creditors' actions and avoid a run or, in the extreme, a debt suspension) rather than via large amounts of official support. This is a most complex issue analytically, and even more so in a policy context.

currency? There is also the real risk of the destruction of confidence undermining new flows, either to the country in question or to its neighbors. For these and other related reasons, the question of private-sector involvement in crisis resolution has rightly been treated with some delicacy.

What is the right mix of private-sector involvement and financing in response to crisis? While case-by-case judgmental approaches are rarely satisfying to analysts, they will, I expect, be pursued by the international community for some time to come. Cases will differ in the nature of the debts coming due, the likelihood that they can ultimately be paid, the ease with which creditors can be organized, the magnitude of contagion risks, and the availability of financial resources, to mention just a few factors. For all these reasons, the G-7 has rightly laid out principles but not detailed procedures for handling issues of private-sector involvement.

V. Concluding Remarks

I will conclude where I began. Sound financial systems can contribute enormously to economic development around the world, and the flow of capital across international borders can confer enormous benefits. And yet as we have seen, there is the potential for massive accidents.

Some, remembering Jim Tobin's admonition, that it takes a heap of Harberger triangles to fill an Okun gap, conclude that the game is not worth the candle and so the flow of capital should systematically be discouraged. I think the right lesson is the more optimistic one, that with good sense and hard work, and a great deal of creative thought, the Okun gaps can be avoided, and the gains from capital flows can translate into what is most important for any economy: namely, changes in its long-term growth rate.

I have described here some of the thinking that has guided the international community in responding to the dramatic developments of recent years. I do so not in the conviction that we have all the answers, but in the certainty that the questions are profoundly important. If I have provoked further thought on a set of issues that economists are uniquely

qualified to address, I will have succeeded in my purpose.

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